



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/691,353	10/18/2000	James W. Adkisson	BUR9-1999-0300-US1	3972
30743	7590	02/23/2006	EXAMINER	
WHITHAM, CURTIS & CHRISTOFFERSON, P.C. 11491 SUNSET HILLS ROAD SUITE 340 RESTON, VA 20190			NGUYEN, KHIEM D	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/691,353

Applicant(s)

ADKISSON ET AL.

Examiner

Khiem D. Nguyen

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 14-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 24-30 is/are allowed.
- 6) ☒ Claim(s) 14-18, 22 and 23 is/are rejected.
- 7) ☒ Claim(s) 19-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Applicants' Amendment and Argument***

The Declaration under 37 CFR 1.132 filed December 7<sup>th</sup>, 2005 is sufficient to overcome the rejection of claims 1 and 14-30 based upon Adkisson et al. (U.S. Patent 6,563,131). Therefore, the non-final rejection as set forth in paper No. (090505) is withdrawn in response to Applicants' amendments. A new rejection is made as set forth in this Office Action. Claims (1 and 14-30) are pending in the application.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

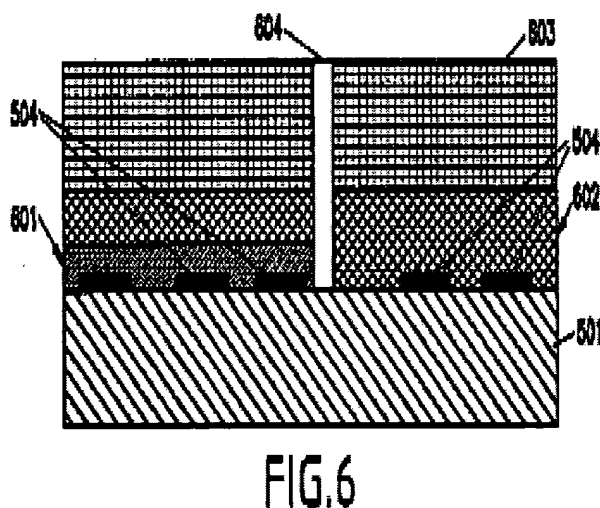
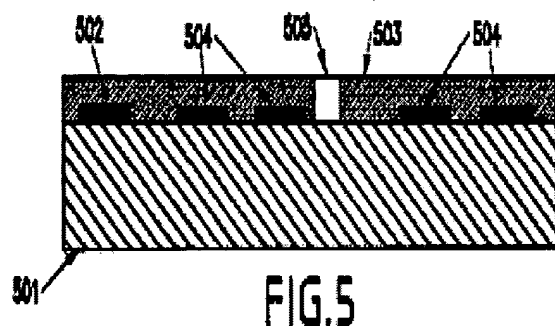
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 14-18 and 22-23 are rejected under 35 U.S.C. 102(e) as being anticipated by anticipated by Misewich et al. (U.S. Patent 6,479,847).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Art Unit: 2823

In re claim 14, Misewich discloses a method for forming a double gated field effect transistor (FET), comprising the steps of: forming on a substrate **501** a first **602** (LHS) and second **602** (RHS) epitaxially grown channels, the channels having vertical side surfaces extending up from the substrate **501** (col. 8, lines 51-64 and FIGS. 5-6),



wherein the second channel **602** (RHS) is grown following removal of a central semiconductor region **503** centered between the channels upon one of whose opposite vertical sides the first channel was grown; etching areas within a silicon layer to form a

Art Unit: 2823

source and a drain **1101**, **1102**, wherein a side surfaces of the source and the drain contact opposing end surfaces of the first and second epitaxially grown channels (FIG. 11); and

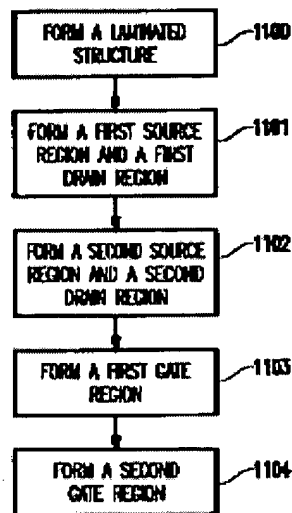


FIG.11

forming a gate **1002** that contacts a top surface and two side surfaces of the first **602** (LHS) and second **602** (RHS) epitaxially grown channels and a top surface of the substrate **501** (col. 8, line 65 to col. 9, line 15 and FIGS. 10 and 12).

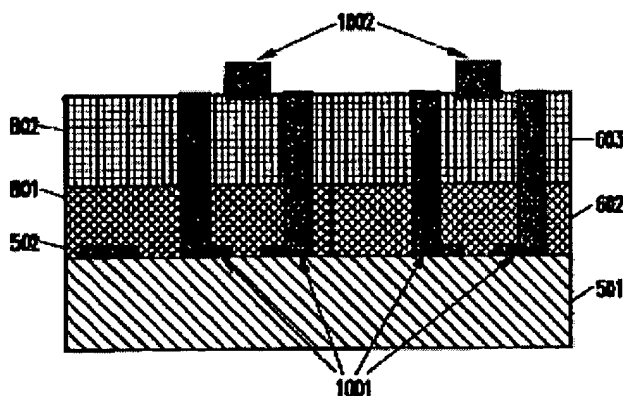


FIG.10

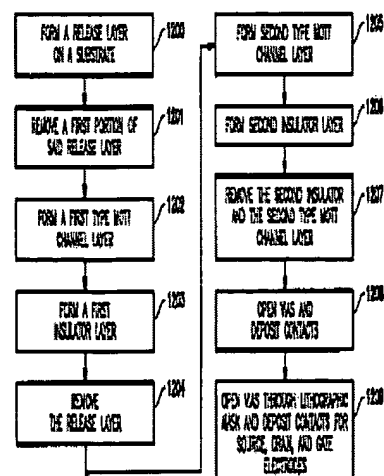


FIG.12

In re claim 15, **Misewich** discloses that the forming step comprises the steps of: forming first and second semiconductor lines, each end of the silicon lines contacting one of the source and the drain; forming an etch stop layer on an exposed side surface of each of the first and second semiconductor lines; epitaxially growing first and second semiconductor layers on each etch stop layer; etching away the first and second semiconductor lines and the etch stop layers; filling areas surrounding the first and second epitaxially grown semiconductor layers and between the source and the drain with an oxide fill; and etching a portion of the oxide fill to form an area that defines a gate, wherein the area that defines the gate is substantially centered between and substantially parallel to the source and the drain (FIGS. 5-7);

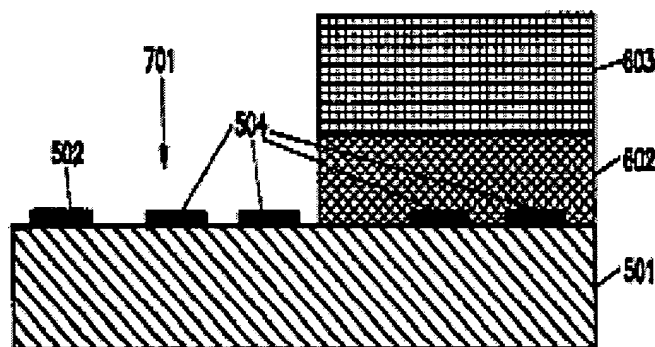


FIG. 7

In re claim 16, **Misewich** discloses that the method as recited in claim 15, further comprising the steps of: etching the oxide fill between the gate the source to expose the first and second epitaxially grown silicon layers; and etching the oxide fill between the

Art Unit: 2823

gate and the drain to expose the first and second epitaxially grown silicon layers (FIG. 5-7).

In re claim 17, Misewich discloses that the method as recited in claim 16, further comprising the step of forming an oxide 603 on the first and second epitaxially grown silicon layers 602 (FIG. 6).

In re claim 18, Misewich discloses that the oxide is silicon dioxide (col. 8, lines 16-21).

In re claim 22, Misewich discloses that the method as recited in claim 14, further comprising the step of forming a contact on each of the gate, the source and the drain (col. 9, lines 3-15).

In re claim 23, it is well-known to one of ordinary skill in the art at the time of the invention was made that the gate material could be polysilicon.

#### ***Allowable Subject Matter***

Claims 1 and 24-30 are allowed.

Claims 19-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khiem D. Nguyen whose telephone number is (571) 272-1865. The examiner can normally be reached on Monday-Friday (8:30 AM - 5:30 PM).

Art Unit: 2823

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

K.N.

February 18, 2006



**W. DAVID COLEMAN  
PRIMARY EXAMINER**